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ABSTRACT

The multimedia self-instructional systems approach to reading instruction utilized at Wascana Institute in Canada has helped a growing number of adult learners succeed in their career training courses. The self-paced program involves sequential instruction in perception and conception, focusing on the minimum essential skills assessed by the Wichita Reading Inventory. Through the use of a controlled reading pacer (which prints lines quickly and then removes them from the reader's field of vision), print material, and fluency training films, the student learns to read without subvocalizing (pronouncing words mentally) or regressing (re-reading sentences and phrases). To create an environment that will ensure student success, all instructional materials are organized sequentially in reference to the basal (conscious learning), prescriptive (subconscious learning), and syntactical (learned skills manipulation) steps necessary for adequate skills development. Potential students are given a battery of reading tests to determine their particular skills deficiencies. Once the student's reading skills are determined, an individualized program with set performance goals, utilizing specific print and media material is prescribed. Students spend a minimum of three hours daily in the reading lab and their reading speeds and comprehension test scores are charted after each session. Pre- and post-test comparisons, after each year of the program, as well as student evaluations are used to measure program success. A lab management model, lab time allocation sheet, and pre- and post-test program result graphs are appended. (PAA)

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A Multimedia Self-Instructional Systems Approach to Reading

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Abstract

This paper describes how a multimedia self-instructional systems approach to reading has achieved remarkable results at a technical/vocational institution. The key to the program's success is the orchestration of reading skills development programming and tachistoscopic training which assure students the desired results in a relatively short period of time.

A Multimedia Self-Instructional Systems Approach to Reading

Facilitating the entry of a broader range of adult learners through modified entrance requirements at post-secondary institutions in Canada has resulted in the enrollment of increasing numbers of non-traditional and academically- disadvantaged students. It is a fact of academic life, therefore, that each year a higher percentage of these students will require the comprehensive and intensive services of a basic skills support system in order to succeed in the various career training courses.

Over the past two years, Wascana Institute's multimedia, self-instructional systems approach to reading improvement has taken its rightful place as an essential ingredient in helping these adult learners to complete their career courses. The key to the program's success is the orchestration of conceptual and perceptual factors which produces steady increases in students' reading skill levels in a relatively short period of time. This paper contains information about how students' abilities are assessed, how individual programs are prescribed, how a self-instructional program works, and how skill improvement is evaluated. The main purpose of the paper, however, is to assist others who might wish to effect a

similar program.

The System

Wascana Institute uses a multimedia, self-instructional system which allows adult learners to proceed through a sequence of learning experiences at their own pace. This "systems approach means focusing first upon the learner and the performance required of him, and then, and only then, making decisions about course content, learning experiences, and choice of most effective media and instructional tactics" (Curl, 1967, p.37). Accordingly, through a diagnosis of individual needs, abilities, and limitations, decisions are made regarding instructional options, learning materials, time patterns, and actual learning times for each student. This, in turn, requires a "planned, organized use of learning resources for achievement of required behavioral objectives by the most efficient means practicable" (Curl, 1967, p.37). The repeated success of students in this learner-oriented reading program is proof that self-directed activities work if they are systematized and rigorously programmed according to each learner's needs and abilities.

Theoretical Basis

The educational philosophy upon which the reading program is based acknowledges that the absence of adequate reading skills in average adult readers is most often the lack of proper skills development. Therefore, reading progress is dependent upon clear understanding of, and meaningful sequential instruction in, the two primary aspects of reading--perception and conception.

It seems that relatively slow readers have several stumbling blocks to improving their rate. One is the habit of subvocalizing, or pronouncing each word mentally in order to reinforce meaning. This habit appears necessary for understanding difficult or abstract material, but because the mind's voice cannot reach rates of over 240 w.p.m. (pronouncing each word), the habit is an impediment to the efficient processing of lighter, more easilty absorbed materials. Another habit poor readers frequently manifest is an anxiety-produced tendency to regress, or go back over phrases and sentences again and again to be absolutely positive that all information has been extracted from the material with one hundred percent accuracy.

Both of the above-mentioned poor habits are automatically broken by the delivery of reading material through a

controlled reader (Shadowscope reading pacer): because the lines of print are presented quickly and then removed from the reader's field of vision, the reader cannot subvocalize or regress. Thus, with sufficient practice, adult learners gain confidence that they can actually apprehend printed material without saying every word to themselves, or without frequently looking back to check what they have read.

On the other hand, in order to stimulate fluent reading patterns for slow readers, it is often necessary to force the process to happen mechanically. This is accomplished through the use of a Tachomatic 500 projector which exposes two- and three-word phrases on a screen from left to right. The phrases are flashed in ever-decreasing amounts of time so that the reader must view the phrase as a whole and practice apprehending the entire phrase using fewer and fewer graphic cues to extract meaning. Thus, in the context of brief, informative reading selections, learners gain experience in using semantic and syntactic cues to mediate comprehension, gradually reducing their reliance on graphic cues. The fluency training films are complemented by workbooks which have the filmed readings in print so that the "far point" over-learning techniques can be transferred to the "near point" task of reading from actual print materials.

Naturally, adult learners are encouraged to develop flexible reading speeds according to the difficulty of a particular selection, their previous knowledge or interest in the topic, and their purpose for reading. This requires an awareness of the fact that materials change in difficulty and that reading techniques must change to efficiently accommodate each kind of material.

The structure and substance for an adult level reading skills development program is provided in the Wichita Reading Inventory (W.R.I.) which lays the foundation for a skills-oriented instructional program based on the assumption that if adult learners are given the time and opportunity to master a series of subskills that incorporate the process of reading, they will be able to manipulate successfully the content of reading (Powers, 1976). The sixty criteria included in the W.R.I. are considered to be the absolute minimum essential skills in the critical areas of word attack/vocabulary, comprehension, and study skills required to be a successful adult reader (Powers, 1976). The critical purpose of the W.R.I. lies in its ability to clearly define each student's instructional needs so that instructors can select and organize learning resources that are relevant to the multiple needs of their students, i.e., provide a "baseline learning environment" (Appendix A).

To create an environment that will ensure student success, two factors must be considered and planned for: (a) the basal, prescriptive, syntactical steps to skill development have to be understood and implemented; and (b) all instructional and learning materials and equipment must be organized in reference to the aforementioned three steps (Powers, 1976). Thus, in the basal step, students are taught the needed skills on a conscious, analytical level until they demonstrate understanding of the skills. This is the correct place, for example, to use textbooks and workbooks as well as instructional filmstrips (all materials used must be formated to explain basic principles). Next, students are assigned materials and equipment designed to help them to practice the skills taught in the basal step. In this prescriptive step, the materials and equipment should be autotutorial which enables the students to practice at rate so that they can become skilled at a subconscious level of performance. And, when students demonstrate mastery of the skills taught and practiced, they are given an opportunity to use the skills in conjunction with all of their reading skills, i.e., they learn to manipulate the skills learned syntactically. High interest, low level vocabulary paperback books, and Tachomatic 500 and controlled reader programs are included in this step. By using the W.R.I., therefore, the instructor

is able to diagnose priority skill deficiencies, prescribe individual remediation in a baseline learning environment, and measure subsequent skill mastery before the student is required to take a standardized achievement test.

Mastery of the sixty subskills (criteria), however, does not guarantee a proficient reader; it simply gives the adult learner the minimum essential "tools" to become a proficient reader. Rather, it is the careful orchestration of both the perceptual and the conceptual factors that produces steady increases in students' reading skill levels.

Implementing the Reading Program

In order to determine a student's proficiencies as well as deficiencies for instructional purposes, three sources of data are used. First, a general level of student achievement is determined through a standardized instrument such as the Nelson-Denny Reading Test. Second, any and all specific problem areas are identified through the use of a truly diagnostic instrument; the W.R.I., the Woodcock Reading Mastery Tests, and the Stanford Diagnostic Reading Test can be used for this purpose. Third, the determination of a skills development program of instruction is developed to ensure student success. The above-mentioned tests provide specific diagnostic information that is used to

prescribe baseline or priority instruction and reinforcement from the multitude of instructional programs available in the reading lab.

The collection of program materials in thi reading program represents a variety of print and media formats at different levels of readability and listenability in order to accommodate the various learning modes of the students. Thus, paperback recreational reading books, instructional manuals, programmed texts, modular workbooks, audio programs, numerous filmstrip programs, kits, and combinations of these are housed in the reading lab. And, since baseline learning is dependent on the careful organization and management of instructional materials and equipment, the program materials are inventoried and cross-referenced to the sixty criteria in the W.R.I. (which are the terminal objectives of the reading program).

Once each student's current abilities have been assessed and plotted on a profile, the student is informed of the areas of strength and weakness, and an individualized program is prescribed. The student's recommended program will include the use of a wide variety of instructional materials which are deemed to be the most suitable for the student's current achievement level (and potential achievement level). The assignment of these materials is accomplished through the use of a master catalogue

of all of the available instructional materials in the reading lab.

Students enrolled in the reading program spend at least three one-hour periods per week in the reading lab. And, in keeping with the principle that learning is something that students do, i.e., an interaction between the student and his/her learning material (Rothkopf, 1966), they are "assigned" activities that are created to ensure that they will master the priority reading skills. Hence, a one-hour period may involve a student reading an essay on a Shadowscope reading pacer at 240 w.p.m., writing answers to comprehension and vocabulary questions, and then seeing a filmstrip for the same essay, using a Tachomatic 500 projector at a speed of 290 w.p.m.. During the same one-hour period, the student will work on vocabulary subskills, using either a T-Matic tachistoscope filmstrip projector, or a Tachomatic 500 projector (Appendix B). Each learning experience, therefore, involves activity in the areas of vocabulary, comprehension, and rate in that order of importance (Powers, 1966).

All of the student's speeds and scores are recorded on a Daily Progress Record Sheet, and then the results for each program are put on a Linear Progress Record; this procedure enables students to see their results sequentially. The Linear Progress Record is used also

to obtain a student's rate of comprehension or his/her "speeded comprehension," i.e., the average of the vocabulary and comprehension scores X w.p.m.. In addition, a Dot Graph Progress Chart for each of the program materials shows the averaged results of all of the exercises attempted in each program.

The establishment of specific performance goals at the beginning of each learner's program, i.e., a predetermined number of exercises in the baseline program and a certain rate of comprehension, provides the student with information about what is expected and helps the instructor evaluate progress during the program. Therefore, by looking at the progress charts and graphs occasionally, both the student and the instructor know precisely where the student is at any point in the reading improvement program and approximately how long it will take the student to finish.

Initially, the instructor guides each student during the beginning stages of an activity. It does not take long, however, for students to become accustomed to the procedures of this self-instructional program, and then they can work by themselves at their own pace. Nevertheless, the students must be in frequent contact with the instructor to ensure that their performance with the various materials will achieve the desired results; and, in the event that students are not doing well with the assigned materials,

the performance goals must be reevaluated and other materials at a lower instructional level have to be assigned. In addition, because learning a skill or technique tends to be boring, slow, and repetitious at times, the instructor may have to provide extra support and encouragement to those students who do not make as dramatic progress as others. Naturally, self-satisfaction occurs when students are able to use the new skills or techniques expertly or easily in the learning resource centre when preparing for a test, or perhaps in the testing centre when writing an examination.

The Nelson-Denny Reading Test is one of the measures used to evaluate the progress of adult learners in the reading program. This is done by averaging both the pretest percentile scores and the grade level equivalent scores of the four subtests and comparing them to the same subtest averages of the post-test. Once the scores have been computed and compared for each individual taking the test, the average gains (or losses) for all of the adult learners during a one year period are assessed, recorded and graphed (Appendix C and D). Pretest and post-test comparison, however, is not the only way used to measure the success of this reading program. Student evaluation and reaction, interest demonstrated by continued attendance in the reading lab, and the gains and steady

increases shown on the progress charts and graphs are, to the writer, equally valid measures of success. To date, for instance, students' written evaluations indicate that most found the learning experience very valuable, the instructional programs and materials quite interesting, and their continued practicing in the lab worthwhile. In subsequent inquiries, they reported that they got more out of their content area material than previously, i.e., the skills and techniques learned in the reading program were transferred to their content area work, and that their course grades had been positively affected. If all of these methods of evaluation can be considered equally valid, then this multimedia, self-instructional systems approach is significantly more effective than many other instructional methods currently in use.

Conclusion

There is a growing awareness today that many adults, after having gone through several years of schooling, lack the ability to read, to write, and to communicate effectively. As revealed in the test results of students across Canada, the problem is national in origin and growing in severity. Thus, nation-wide, post-secondary institution classes are riddled with adult learners who lack the basic skills needed

to succeed in their courses. Wascana Institute has countered the effects of the decline in reading skills, however, by designing and implementing a delivery system of adult reading skills improvement which has met with remarkable success. The reason for the success of this multimedia, self-instructional systems approach to reading is that it is clear-cut, common sense, research-supported, and adult needs-oriented. More important, however, is the fact that this approach to reading skills improvement can be adapted for use in any post-secondary institution which desires to bring reading skills to adult learners when and where they need them.

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APPENDIX A

Baseline Learning Environment

LAB MANAGEMENT MODEL

STEP III (GRADES 7 - ADULT)

ADULT EFFICIENCY

1. Word Attack Skills
2. Vocabulary Skills
3. Comprehension Skills
4. Flexibility of Rate Skills
5. Study Skills

BASELINE OPTIMUM READING ACHIEVEMENT — THE COLLEGE STUDENT BASELINE

VOCABULARY DEVELOPMENT

ARITHMETIC

Words & Phrases
(VT and VC Series)

GEOMETRIC

Prefix • Root • Suffix
Spelling Principles

INDIVIDUAL PRESCRIPTIONS

Audit 300
Radio Reading
Purdue Reading Series

ADDITIONAL MATERIALS

Topics for the Restless
Voices from the Bottom
Reading Drills
Six-Way Paragraphs
Comprehension Skills

*Adapted from Walter L. Powers, 1976.

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One Hour/Period Time Allotment

I. INDEPENDENT READING

Time: 15 minutes

Purpose:
- to practice good reading habits
- to develop independence in reading

II. VOCABULARY BUILDING

Time: 20 minutes

Purpose:
- to provide success in attacking, learning, and using new, better, and higher level words
- to develop a sense of sound, accent, and correct spelling
- to develop the attitude that the most important component to better thinking is to have a better vocabulary

III. COMPREHENSION

Time: 20 minutes

Purpose:
- to develop the concepts necessary for the English content area
- to develop skills necessary for getting the writer's meaning
- to integrate vocabulary and other skills so that they do not impede efficient reading
- to work toward reaction to the printed word and the integration of reading into life experiences

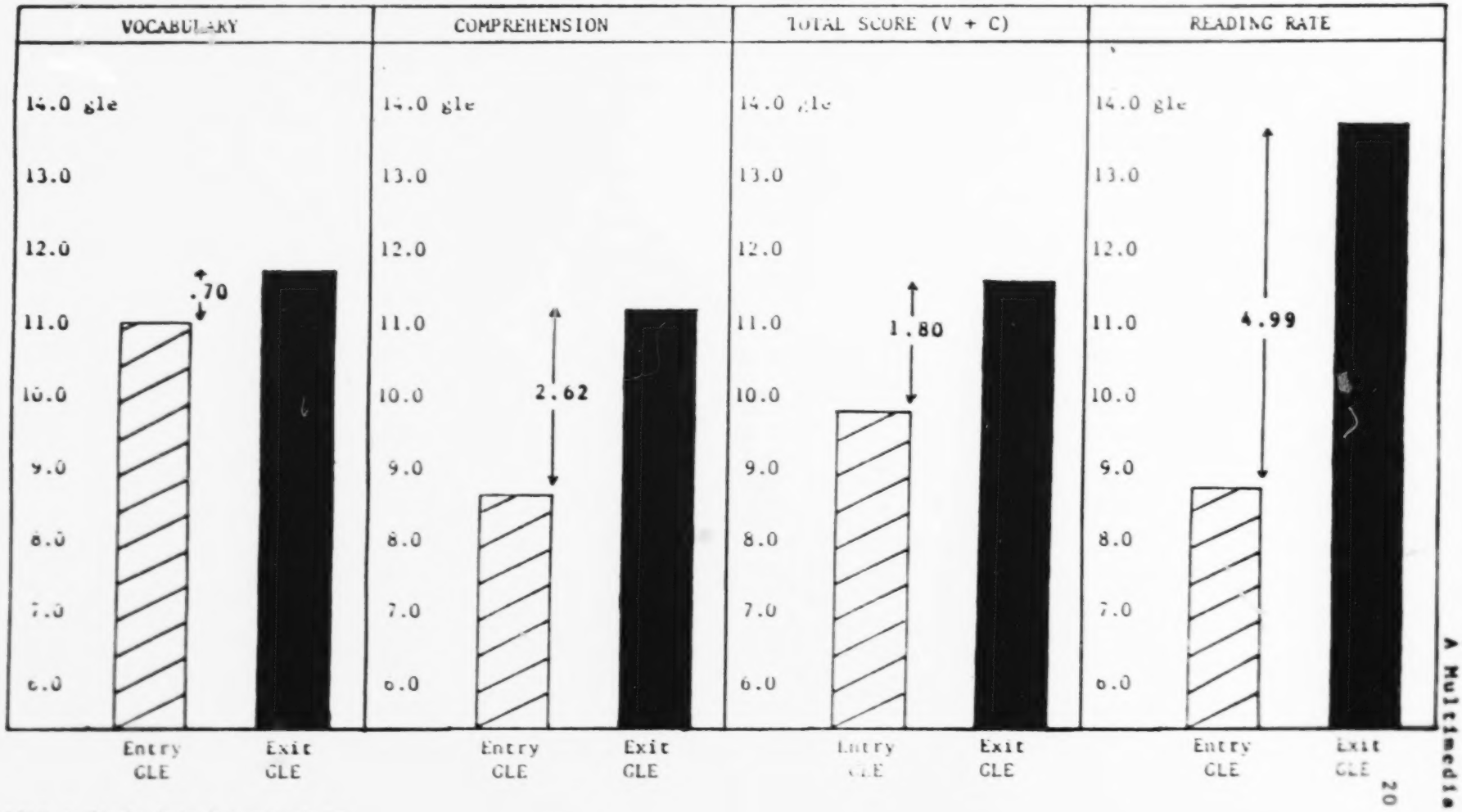
IV. RATE (SPEED)

Time: 5 minute sections

Purpose:
- to develop variable rates as desired
- to develop confidence that the eyes will absorb information accurately at a high rate

APPENDIX C

Average Grade Level Improvement For Reading Program Students In 30 Hours (1985)



*GLE = Grade Level Equivalent

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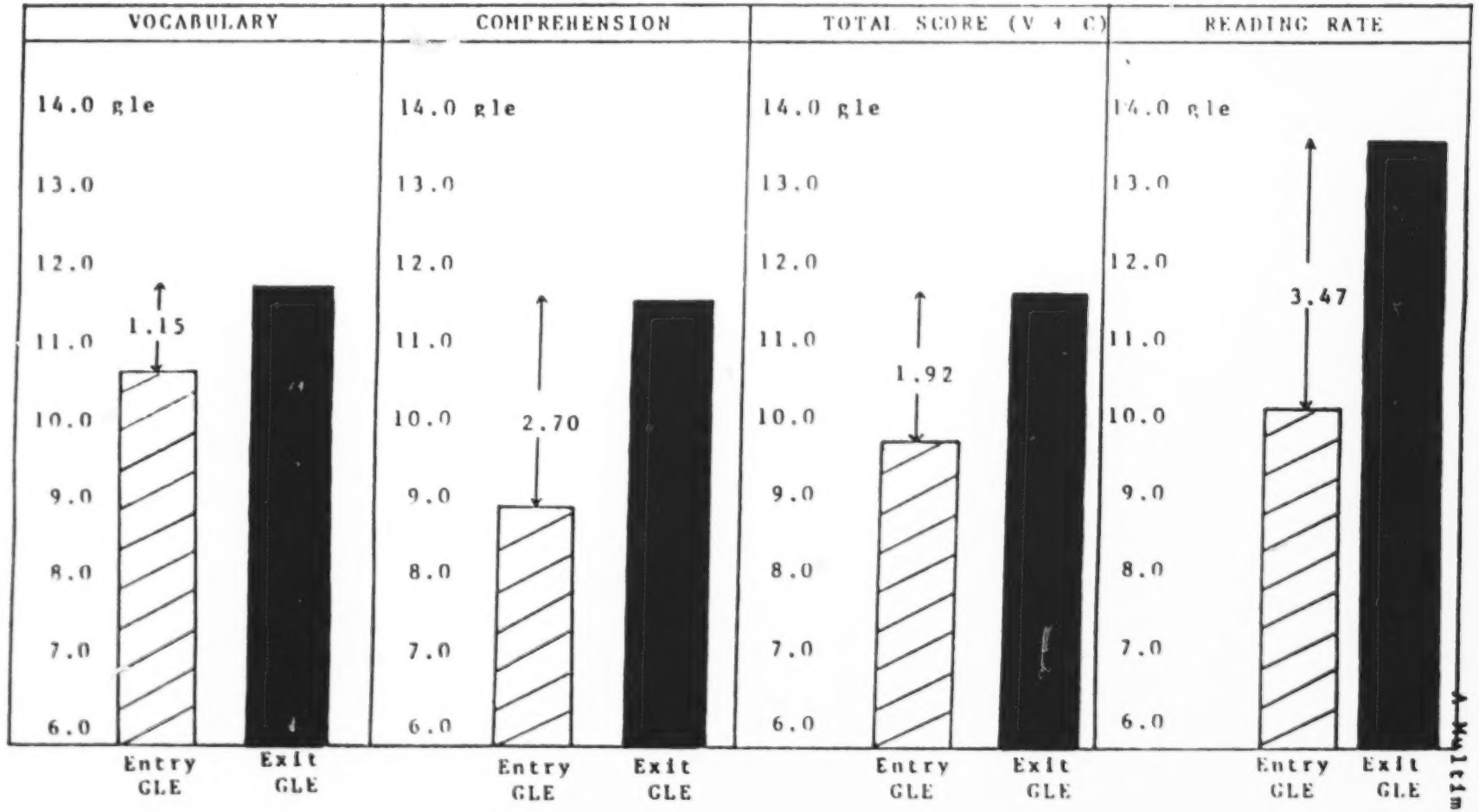
APPENDIX D

Average Grade Level Improvement For Reading Program Students In 40 Hours (1986)



*GLE = Grade Level Equivalent

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